Mean tailings pore water concentrations for radium-226 and uranium are 61.1 picocuries per liter (pCi/L) and 15.1 mg/L, respectively. The average tailings pore water concentration for ammonia (as N) is 1,100 mg/L. Pore water is a mixture of residual milling fluids and water that infiltrated later into the tailings. The pore water appears to be relatively oxidized, although few data are available to assess oxidation-reduction potential. The pH value of the pore water is near neutral, and the mean TDS concentration is 23,500 mg/L. Values of pH, oxidation state, and availability of soluble minerals in the tailings are the main parameters that affect the composition of pore water. Concentrations of organic constituents used in the mill processing circuit are negligible in the pore water. Concentrations of all constituents are much higher in samples of water collected in a shallow-depth sump fed by pore water extracted from the tailings through wick drains than in any of the pore water samples collected from deeper SRK (2000) wells. Analysis of samples collected from the sump indicate the presence of a salt layer in the upper portion of the pile (DOE 2003).

Two underground septic tanks (size unknown) that supported past operations but are no longer used are located inside the radioactively contaminated portion of the site northeast of the historical warehouse. It is unknown if there are buried leach fields associated with these tanks. Organic contamination in soil and ground water samples was not detected by DOE in an analysis performed as part of the site characterization for the SOWP (DOE 2003).

3.1.4 Air Quality

EPA has established NAAQS for sulfur dioxide, nitrogen dioxide, carbon monoxide, ozone, lead, and particulate matter (particles less than 10 micrometers [µm] in aerodynamic diameter, designated PM_{10}) small enough to move easily into the lower respiratory tract. NAAQS are expressed as concentrations of particular pollutants that are not to be exceeded in the ambient or outdoor air to which the general public has access (40 CFR 50.1[e]). Primary NAAQS are designated to protect human health; secondary NAAQS are designated to protect human welfare by safeguarding environmental resources (such as soils, water, plants, and animals) (Table 3–4). Utah has adopted NAAQS as the air quality standards for the state.

Table 3–4. Air Quality Standards

Pollutant	Averaging Period	National and State Ambient Air Quality Standard ($\mu g/m^3$)[a]		Allowable Increment for Prevention of Significant Deterioration (PSD)[a] ($\mu g/m^3$)	
		Primary	Secondary	Class I	Class II
Sulfur dioxide	Annual	80	–	2	20
	24-hour[b]	365	–	5	91
	3-hour[b]	–	1,300	25	512
Nitrogen dioxide	Annual	100	100	2.5	2.5
Carbon monoxide	8-hour[b]	10,000	–	–	–
	1-hour[b]	40,000	–	–	–
Ozone	1-hour[b]	235	235	–	–
PM_{10}[c]	Annual	50	50	4	17
	24-hour[b]	150	150	8	30
Lead	3-month[d]	1.5	1.5	–	–

[a]$\mu g/m^3$ = micrograms per cubic meter; where no value is listed, there is no corresponding standard.
[b]Not to be exceeded more than once per year (for ozone and PM_{10}, on more than 1 day per year on the average over 3 years).
[c]Particulate matter less than 10 µm in diameter.
[d]Calendar quarter.

The air quality in the Moab area is generally good. The current median visual range for the Moab region is about 81 miles (Trijonis 1990). Grand and San Juan Counties are designated as being in attainment with NAAQS for sulfur dioxide, nitrogen dioxide, carbon monoxide, and ozone (40 CFR 81.345). Not enough data are available to support a classification for PM_{10}, so a designation of "unclassifiable" is given for that pollutant (40 CFR 81.345). The PM_{10} data for the Moab region (Table 3–5) show one exceedance during the 4-year period of 1991–1994; an average of one exceedance per year over a 3-year period is allowed. No designation (attainment, nonattainment, or unclassifiable) is published for Utah for lead, although data from Utah metropolitan areas indicate that levels of lead are less than 10 percent of NAAQS (Table 3–4 and Table 3–5). Lead concentrations in the atmosphere have decreased markedly in recent years, largely because of the substitution of unleaded gasoline for leaded gasoline. Monitoring locations in Table 3–5 are those that are closest to the Moab site, including those in Colorado.

Table 3–5. Air Quality in the Moab Region

Pollutant	Monitor location[a]	Year	Averaging period	Maximum (μg/m^3)[b]	Annual mean (μg/m^3)
Sulfur dioxide	Mesa County, Colorado	1991	3 hours	28	4
	Mesa County, Colorado	1992	3 hours	13	4
	Salt Lake City[c]	1993	3 hours	776	34
	Salt Lake City	1994	3 hours	509	29
	Mesa County, Colorado	1991	24 hours	9	4
	Mesa County, Colorado	1992	24 hours	12	4
	Salt Lake City[c]	1993	24 hours	176	34
Nitrogen dioxide	Salt Lake City	1991	Annual		55
	Salt Lake City	1992	Annual		49
	Provo[c]	1993	Annual		49
	Provo[c]	1994	Annual		45
Carbon monoxide	Grand Junction, Colorado	1991	1 hour	14,375	
	Grand Junction, Colorado	1992	1 hour	13,685	
	Grand Junction, Colorado	1993	1 hour	13,800	
	Grand Junction, Colorado	1994	1 hour	13,340	
	Grand Junction, Colorado	1991	8 hours	8,970	
	Grand Junction, Colorado	1992	8 hours	7,705	
	Grand Junction, Colorado	1993	8 hours	7,935	
	Grand Junction, Colorado	1994	8 hours	8,625	
Ozone	Arches National Park	1991	1 hour	141	
	Arches National Park	1992	1 hour	135	
	Canyonlands National Park[c]	1993	1 hour	147	
	Canyonlands National Park[c]	1994	1 hour	143	
PM_{10}	Moab	1991	24 hours	181[d]	34
	Moab	1992	24 hours	65	33
	Grand Junction, Colorado[c]	1993	24 hours	67	25
	Grand Junction, Colorado[c]	1994	24 hours	63	24
Lead	Salt Lake City	1991	3 months[e]	0.09	
	Salt Lake City	1992	3 months[e]	0.05	
	Salt Lake City	1993	3 months[e]	0.05	
	Salt Lake City	1994	3 months[e]	0.05	

[a] With the exception of PM_{10}, few site-specific data are available for Moab. The following monitor locations provide the closest available data.
[b] μg/m^3 = micrograms per cubic meter. Values reported are from the nearest monitoring station.
[c] A different station was used for 1993 because reporting at the previous nearest station had been discontinued. For sulfur dioxide, the 1991 and 1992 values are believed to be more representative of current conditions at Moab than are the more recent values at the more distant station.
[d] One exceedance per year is allowed; the second highest value during 1991 was 111 μg/m^3, which is below the 24-hour standard.
[e] Calendar quarter.

In addition to ambient air quality standards, which represent an upper bound for allowable pollutant concentrations, there are standards to prevent the significant deterioration of air quality. The prevention of significant deterioration (PSD) standards differ from the NAAQS in that the NAAQS provide maximum allowable *concentrations* of pollutants, and PSD requirements provide maximum allowable *increases in concentrations* of pollutants for areas in compliance with the NAAQS. PSD standards are, therefore, expressed as allowable *increments* in the atmospheric concentrations of specific pollutants. Allowable PSD increments currently exist for nitrogen dioxide, sulfur dioxide, and PM_{10}. PSD increments are particularly relevant when a major proposed action (involving a new source or a major modification to an existing source) may degrade air quality without exceeding the NAAQS (as would be the case, for example, in an area where the ambient air is very clean). One set of allowable increments exists for Class II areas, which cover most of the United States, and a much more stringent set of allowable increments exists for Class I areas, which are specifically designated areas where the degradation of ambient air quality is severely restricted. Class I areas include certain national parks and monuments, wilderness areas, and other areas as described in 40 CFR 51.166 and 40 CFR 81.400–437. Maximum allowable PSD increments for Class I and Class II areas are given in Table 3–4. The PSD Class I area nearest the Moab site is Arches National Park, immediately to the north of the Moab site and about 1,000 ft from the north edge of the tailings pile. Arches National Park has been designated as a mandatory Class I federal area where visibility is an important value (40 CFR 81.430).

3.1.4.1 Conformity Review

Section 176(c)(1) of the Clean Air Act requires that federal actions conform to applicable state implementation plans for achieving and maintaining the NAAQS for the criteria air pollutants. In 1993, EPA promulgated a rule titled "Determining Conformity of General Federal Actions to State or Federal Implementation Plans" (58 FR 63214), codified at 40 CFR Parts 6, 51, and 93. The rule is intended to ensure that criteria air pollutant emissions and their precursors (i.e., volatile organic compounds and nitrogen oxide) are specifically identified and accounted for in the attainment or maintenance demonstration contained in a state implementation plan. For there to be a conformity, a federal action must not contribute to new violations of air quality standards, increase the frequency or severity of existing violations, or delay timely attainment of standards in the area of concern.

The conformity rule applies to proposed federal actions that would cause emissions of criteria air pollutants above certain levels to occur in locations designated as nonattainment or maintenance areas for the emitted pollutants. Under the rule, an agency must engage in a conformity review process and, depending on the outcome of that review, conduct a conformity determination.

DOE conducted the required conformity review and determined that all the proposed alternative actions would result in emissions of one or more criteria air pollutants. These emissions are described further in the air quality sections of Chapter 4.0. However, because none of the proposed action alternatives (on-site or off-site disposal) would occur in or potentially affect a nonattainment or maintenance area, further conformity determination under the conformity rule is not required.